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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,026	03/23/2006	Herbert Brunner	502902228PUS	8015

27799 7590 05/20/2010

COHEN, PONTANI, LIEBERMAN & PAVANE LLP
551 FIFTH AVENUE
SUITE 1210
NEW YORK, NY 10176

EXAMINER	
HOLLWEG, THOMAS A	

ART UNIT	PAPER NUMBER
2879	

MAIL DATE	DELIVERY MODE
05/20/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,026	Applicant(s) BRUNNER ET AL.	
	Examiner Thomas A. Hollweg	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,8-11,13,14,16,17 and 20-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-11,13,14,16,17 and 20-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 26, 2010, has been entered.

2. Claims 5-7, 12, 15, 18 and 19 are canceled. Claims 23-28 are added. Claims 1-3, 8-11, 13, 14, 16, 17 and 20-28 are currently pending.

Priority

3. Receipt of the verified English language translation of the German priority application (DE 10344331.2) is acknowledged. Also receipt of Applicant's Declaration under Rule 131 and exhibits showing an invention date that is earlier than the international filing date of the Delsing (US 2005/0205845 A1) reference. Therefore Delsing is disqualified as prior art.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 23-26 are rejected under 35 U.S.C. 112,** second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. With regard to claims 23 and 24, amended claim 23 now reads "a proportion of the SiN group in the empirical formula for said first phosphor is replaced by AlO". The empirical formula for the first phosphor is $M_{(1-c)}Si_2O_2N_2:D_c$. There is no SiN group identified in this formula, therefore this claim limitation cannot be understood.

7. For examination this claim limitation will be interpreted consistent with the limitation of previous claim 5, which read "a proportion SiN, in particular up to 30mol%, is replaced by AlO". This was understood to mean the precursor SiN (see specification, page 4, line 20), not a "SiN group in the empirical formula for said first phosphor".

8. With regard to claims 25 and 26, the claim limitation "a proportion of the Eu is replaced by Mn", however both the first and second phosphors contain some Eu. It is not clear whether the Eu of the first phosphor only, second phosphor only, or Eu from both the first and second phosphor is replaced by Mn. It is assumed that the Eu of the first phosphor is replaced by Mn, consistent with the disclosure.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. **Claims 1-3, 9-11, 13, 20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller et al., U.S. Patent No. 6,717,353 B1, in view if itself.**

11. **With regard to claim 1,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising:

a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$ (col. 3, lines 42-51), producing a color temperature of from 2300 to 7000 K (Table, col. 4, lines 49-56).

12. Mueller does not expressly disclose an example having a color rendering of Ra > 90.

13. Mueller discloses a white-emitting LED with the same light source and combination of two phosphors as the immediate disclosed device and, in figure 7, and table corresponding to figure 7 (col. 4, lines 49-56), Mueller teaches examples having color rendering indexes as high as 87. Muller further teaches a general formula for the nitridosilicate phosphor ($(Sr, Ba, Ca)_2Si_5N_8:Eu$, col. 3, lines 47-48) which encompasses the formulation containing the specific ratios of Europium and Calcium which renders a device having a color rendering index of greater than 90. (According to the immediate specification, page 11, second full paragraph, the LED will have a Ra of greater than 90 when the second phosphor has a molar ratio of Ca of 0.1 and the molar ratio of Eu of 0.05-0.1. These values fall squarely within the ranges disclosed by Mueller). It would

require no more than routine experimentation to tune Mueller LED, having the same light source and two phosphors as recited in the claim, to have an Ra > 90, for one skilled in the art, simply by following the teachings of Mueller.

14. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller white-emitting LED where the color rendering of Ra > 90, because a light source having a high Ra will more accurately reproduce colors.

15. **With regard to claim 2,** in figure 4, Mueller discloses that in the oxynitridosilicate the Eu fraction makes up between 0.1 and 20 mol % of M (col. 2, lines 16-23).

16. **With regard to claim 3,** in figure 4, Mueller discloses that a proportion of M is replaced by Ba and/or Ca and/or Zn (col. 2, lines 16-23).

17. **With regard to claim 9,** in figure 7, Mueller discloses that the LED has a color temperature of from 2700 to 3300 K (Table, col. 4, lines 49-56).

18. **With regard to claim 10,** in figure 7, Mueller discloses that the LED achieves the white luminous color by color mixing with the RGB principle, with the primary emission of the blue LED having a peak wavelength of from 430 to 470 nm (col. 3, lines 34-58).

19. **With regard to claim 11,** in figure 7, Mueller discloses that the emission from the chip has a peak wavelength in the range from 450 to 465 nm (col. 3, lines 34-58).

20. **With regard to claim 13,** in figure 4, Mueller discloses that the nitridosilicate contains Sr as a permanent component, and Ca in a proportion of from 0 to 60 mol % (col. 2, lines 16-23).

21. **With regard to claim 20,** in figure 4, Mueller discloses that a proportion of M is replaced by Ba and/or Ca and/or Zn is up to 30 mol% (col. 2, lines 16-23).

22. **With regard to claim 28,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising: a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$ (col. 3, lines 42-51), producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80 (Table, col. 4, lines 49-56).

23. Mueller is silent as to the dominant wavelength of the first phosphor.

24. Mueller teaches that the first phosphor emits green light (col. 1, line 52), and teaches a specific example of the emission spectrum where the emission of the first phosphor appears to have a peak wavelength in the range from 550 to 570 nm. Based on the teaching of Mueller, in an effort to achieve balanced white light emission, it would be well within the abilities of one skilled in the art to tune the first phosphor so that the dominant wavelength is in the range from 550 to 570 nm.

25. Therefore, at the time of invention, it would have been obvious for a person having ordinary skill in the art to construct, the Mueller white-emitting LED where the first phosphor has a dominant wavelength in the range from 550 to 570 nm to achieve balance white light emission.

26. **Claims 8, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, in view of Bischoff, U.S. Patent No. 6,158,882.**

27. **With regard to claim 8,** Mueller discloses all of the limitations, as discussed in the rejection of claim 1, however, it does not expressly disclose that the LED is dimmable.

28. Bischoff, in figure 1, teaches an LED device (10) that is dimmable (col. 2, lines 15-31).

29. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller white-emitting LED so that it is dimmable, as taught by Bischoff. An LED light source that is dimmable is very useful for many applications, such as aircraft cabins (col. 2, lines 50-54).

30. **With regard to claim 16,** Mueller discloses all of the limitations, as discussed in the rejection of claim 1, however, it does not expressly disclose that the system includes electronics for driving the individual LEDs or groups of LEDs.

31. Bischoff, in figure 1, teaches an LED system that includes electronics (50, 80) for driving the individual LEDs (40) or groups of LEDs.

32. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller LED system so that it includes electronics for driving the individual LEDs or groups of LEDs, as taught by Bischoff. Groups of LED that are individually controllable are very useful for illumination applications, as taught by Bischoff (col. 2, lines 50-57).

33. **With regard to claim 17,** Mueller and Bischoff disclose all of the limitations, as discussed in the rejection of claim 16. Further Bischoff teaches that the electronic control (50, 80) includes means which impart dimmability (50) (col. 4, lines 66-67).

34. **Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, in view of Ellens et al., U.S. Patent Application Publication No. 2002/0105269 A1.**

35. **With regard to claim 14,** all of the limitations are disclosed by Mueller, as discussed in the rejection of claim 1 above, including that the nitridosilicate has an emission of red (col. 3, lines 45-50) and in figures 7 and 8, the peak emission of the nitridosilicate is shown to be very close to 620 nm. However, Mueller does not expressly disclose that the emission of the nitridosilicate has a dominant wavelength λ_{dom} in the range from 620 to 660 nm.

36. Ellens (‘269), in figure 6, discloses a nitridosilicate phosphor (3) where the emission of the nitridosilicate has a dominant wavelength λ_{dom} in the range from 620 to 660 nm [0023].

37. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller LED where that the emission of the nitridosilicate

has a dominant wavelength λ_{dom} in the range from 620 to 660 nm, as taught by Ellens ('269) to achieve a high color rendering white light.

38. **Claims 21-22 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller as applied to claim 1 above, in view of Ellens et al., U.S. Patent Application Publication No. 2003/0094893 A1.**

39. **With regard to claim 21,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising: a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$ (col. 3, lines 42-51), producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80 (Table, col. 4, lines 49-56).

40. Mueller does not expressly disclose that a proportion of M is replaced by Li and/or La and/or Na and/or Y.

41. Ellens ('893) teaches an oxynitridosilcate phosphor having a cation comprising (Sr, Ba, Ca) where a portion of cation is replaced by a trivalent metal such as La or Y [0005, 0007, 0038-0041], to tune the color hue and saturation of the phosphor.

42. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller white-emitting LED where M is replaced by Li and/or La and/or Na and/or Y, as taught by Ellens ('893), to tune the color hue and color saturation of the phosphor.

43. **With regard to claim 22,** Mueller and Ellens ('893) teach all of the claim limitations except they do not expressly disclose a proportion of M replaced by Li and/or La and/or La and/or Na and/or Y.

44. It has been held that where the general limitations of the claim are taught by the prior art, discovering an optimum or workable range involves only routine skill in the art (*In re Aller*, 105 USPQ 233 (CCPA 1955)). Based on the teachings of Mueller and Ellens (‘893), it would have been obvious for one having ordinary skill in the art to determine an optimal value for the proportion of M replaced by Li and/or La and/or La and/or Na and/or Y.

45. Therefore, At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Muller and Ellens (’893) LED device, discussed in the rejection of claim 21, where the proportion of M replaced by Li and/or La and/or La and/or Na and/or Y is up to 30 mol%, to optimize the color hue and color saturation of the phosphor.

46. **With regard to claim 25,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising: a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)} Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$ (col. 3, lines 42-51), producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80 (Table, col. 4, lines 49-56).

47. Mueller does not expressly disclose that a proportion of Eu of the first phosphor is replaced by Mn.

48. Ellens teaches the a phosphor with the co-doping of Eu and Mn so that energy is transferred from the first doping to the co-doping to shift the peak of emission [, 0058, 0061].

49. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Muller white-emitting LED where a proportion of Eu of the first phosphor is replaced by Mn, as taught by Ellens, to shift the peak of emission.

50. **With regard to claim 26,** Ellens teaches a co-doping where Mn is up to 30 mol% [0058, 0061].

51. **With regard to claim 27,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising: a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8$:Eu (col. 3, lines 42-51), producing a color temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80 (Table, col. 4, lines 49-56).

52. Mueller discloses that the chip is a III-nitride LED (col. 1, line 19), but d does not expressly disclose InGaN.

53. Ellens teaches an LED which is an InGaN chip, because this is a commonly used chip which is very efficient and produces ideal excitation light for the phosphors [0084].

54. At the time of invention, it would have been obvious for a person having ordinary skill in the art to construct the Mueller white-emitting LED where the chip is an InGaN

chip, as taught by Ellens, because this type of chip is very efficient and produces ideal excitation light for the phosphors.

Claim Rejections - 35 USC § 102

55. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

56. **Claims 23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Muller.**

57. **With regard to claim 23,** in figure 4, Mueller discloses a white-emitting LED with a defined color temperature, designed as a luminescence conversion LED, comprising: a primary radiation source (24), which is a chip that emits in the blue spectral region; a layer (26) of first and second phosphors in front of said source (24), both of which phosphors partially convert the radiation of the chip (24) (col. 3, lines 1-12); wherein the first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, M=Sr or $M=Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification (col. 2, lines 16-42); and wherein the second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$ (col. 3, lines 42-51), producing a color

temperature of from 2300 to 7000 K and at the same time achieving a color rendering of at least Ra = 80 (Table, col. 4, lines 49-56).

58. The Examiner notes that the claim limitation “a proportion of the SiN group in the empirical formula for said first phosphor is replaced by AlO” is drawn to a precursor material which is incidental to the claimed apparatus. It is noted that there is no Al component in the empirical formula for first phosphor, so this precursor material does not directly contribute the composition of the final product. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the limitation claiming the composition of a precursor material has been considered, but not patentably distinct over Mueller (see MPEP 2113).

59. **With regard to claim 24,** the claim limitation "wherein the proportion of the SiN group is the empirical formula for said first phosphor replaced by AlO is up to 30 mo”%" is drawn to a precursor material and does not therefore distinguish claim 24 over Muller, as explained in the rejection of claim 23.

Response to Arguments

60. Applicant again argues that the prior art reference, Mueller (US 6,717,353 B1), does not anticipate claim 1 because it does not disclose either the first or the second claimed phosphor. Specifically, Applicant argues that the claims are for specific values of the relative amounts of elements in both the first and second phosphors, while the prior art, Mueller, discloses ranges for each of these values. It is not disputed that Applicant's claimed values fall within the disclosed ranges. Applicant states that the previously presented arguments on this point were not specifically addressed in the

previous Office Action. The following is a more detailed explanation of the reasons Applicant's arguments are not found to be convincing.

61. The claimed relative amount (2) for each of the elements, Si, O and N, in the first phosphor is the center of the range disclosed by the prior art (1.5-2.5). Similarly the claimed total relative amount of Eu and Sr (or Sr, Ba, and Ca) is 1, while Mueller discloses that the total relative amount can be between 1 and 1.25. A similar argument is presented for the second phosphor.

62. Applicant's argument suggests that any subsequent patent claim for the first phosphor disclosed by Mueller will be patentably distinguishable over Muller as long as the subsequent claim is for a specific value. For example, if applicant's claim for 2 is patentably distinguishable over the range 1.5 to 2.5, then claims for 1.7, 1.9, 2.1 and 2.3 should also be granted a patent. Clearly this position is untenable and contrary to the purpose of prior art in patent law. The values claimed by applicant fall squarely within the range disclosed by the prior art. Further, the first and second phosphors described in the present application exhibit nearly identical characteristics as those disclosed by Mueller. For these reasons, Mueller clearly discloses what is claimed.

63. Alternatively Applicant argues that the law states "a species can anticipate a genus, and a narrow range can anticipate a broad range entirely encompassing the narrow range, but not the reverse" citing *Atofina v. Great Lakes Chem. Corp*, 441 F.3d 991, 999, 78 USPQ2d 1417, 1423 (Fed. Cir. 2006). This principle of law argued by Applicant, that a broad range <u>cannot</u> anticipate a narrow range is not found in *Atofina*.

The Federal Circuit, in *Atofina*, states the principal governing the immediate case as follows:

> "It is well established that the disclosure of a genus in the prior art is not necessarily a disclosure of every species that is a member of that genus. See, e.g., In re Baird, 16 F.3d 380, 382 [29 USPQ2d 1550] (Fed. Cir. 1994). There may be many species encompassed within a genus that are not disclosed by a mere disclosure of the genus. On the other hand, a very small genus can be a disclosure of each species within the genus. In re Petering, 301 F.2d 676, 682 [133 USPQ 275] (C.C.P.A. 1962); see also Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1380 [58 USPQ2d 1508] (Fed. Cir. 2001) ("[T]he disclosure of a small genus may anticipate the species of that genus even if the species are not themselves recited.")." *Id.* (underline added).

64. The immediate case involves a prior art disclosure of a small range, and a claim for a specific value within that range. Unlike the prior art in *Atofina*, disclosing a broad range, the prior art in the immediate case, Mueller, discloses a narrow range for the relative amounts of elements in the disclosed phosphors (1.5-2.5). Mueller also discloses specific species of the phosphors (col. 4, lines 38-60) but is silent as to the relative amounts of elements present in each of the disclosed species. In the immediate case the genus is very small. It describes a phosphor which emits light in a narrow emission spectra (see Mueller fig. 1, nearly identical to the emission spectra of the claimed phosphor see immediate fig. 1). Species containing relative amounts of elements between 1.5 and 2.5 are clearly anticipated by the Mueller disclosure. Further, Applicant has not presented any arguments or evidence suggesting that the Mueller disclosure lacks sufficient specificity, or any evidence showing secondary considerations related to the claimed values. For these reasons, Applicant's arguments are not found to be convincing.

Conclusion

65. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Hollweg whose telephone number is (571) 270-1739. The examiner can normally be reached on Monday through Friday 7:30am-5:00pm E.S.T..

66. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

67. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TH/

/NIMESHKUMAR D. PATEL/
Supervisory Patent Examiner, Art Unit 2879